How to Measure Peripheral Venous Diameters and Depths

In the context of Venous Reflux Studies and Peripheral Vein Mapping Studies

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Basic Diameter Measurement

- Transverse plane when possible
- 90 degrees to long axis of vessel
- Calipers positioned near field to far field

Incorrect: calipers not positioned near field to far field
Incorrect: vessel partially compressed by transducer
Incorrect: measurement oblique to long axis of vessel

Correct
“Perfect” Junction Measurement

- Transverse view when possible
- Rarely possible due to angulation of SFJ
- 90 degrees to long axis of vessel
- Calipers positioned near field to far field

Incorrect: calipers not positioned near field to far field
Incorrect: vessels partially compressed by transducer
Incorrect: measurement oblique to long axis of vessel
Scanning plane clearly shows long axis of vessel to be measured
Calipers 90 degrees to long axis of vessel
Measurement is of vessel, not confluence
Can measure up to 1 cm from actual confluence
Typical Junction Measurement – Long Axis

- Scanning plane clearly shows long axis of vessel to be measured
- Calipers 90 degrees to long axis of vessel
- Measurement is of vessel, not confluence
- Can measure up to 1 cm from actual confluence

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Correct

Incorrect: oblique to long axis of vessel

Correct

Incorrect: actual confluence oblique to long axis of vessel
Diameter & Depth Measurements

- Transverse view 90 degrees to long axis of vessel; AND
- Transducer 90 degrees to skin surface
- Measure from top of image (skin surface) to most superficial aspect of vessel
- Only possible if long axis of vessel is parallel to skin surface

Incorrect: diameter calipers not positioned near field to far field
Incorrect: not 90 degrees to vessel (vessel diving deep)
Incorrect: depth calipers not measuring to most superficial aspect of vessel
Diameter & Depth of Junctions

- Scanning plane clearly shows long axis of vessel to be measured
- Transducer 90 degrees to skin surface
- Measure from top of image (skin surface) to nearest caliper of the diameter measurement (depth caliper and diameter caliper touching)
- Can measure up to 1 cm from actual confluence
- It’s OK if the actual confluence is slightly deeper than the measurement
Diameter & Depth of Junctions

- Do not measure depth of actual confluence – this policy decision made at UMass for consistency & reproducibility, other accredited labs may choose to measure differently
- Measure from top of image (skin surface) to the nearest caliper of the diameter measurement (depth caliper and diameter caliper touching)
- It’s OK if the actual confluence is slightly deeper than the measurement – does not change treatment or patient management

Incorrect: depth caliper not touching diameter caliper
Incorrect: depth caliper touching wrong diameter caliper
Incorrect: depth calipers not perpendicular to skin surface
Thank You

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